

## NOTES ON BANISTERIOPSIS FROM SOUTH-CENTRAL BRAZIL<sup>1</sup>

William R. Anderson and Bronwen Gates  
University of Michigan

The genus now called *Banisteriopsis* is one of the largest genera in the Malpighiaceae, comprising about 100 species. It was first circumscribed in the modern sense by Adrien de Jussieu, under the name *Banisteria* L., and that name was generally applied to this group during the century between Jussieu's first publication on Malpighiaceae in 1833 and Franz Niedenzu's monograph of the family in 1928. Unfortunately, the species that comprised *Banisteria* in the *Species Plantarum* of Linnaeus (1753) did not include any referable to the genus as circumscribed by Jussieu and Niedenzu. Proposals by Morton (1967) and Anderson (1967) to conserve *Banisteria* in the sense of later authors were rejected (McVaugh, 1968), and so it is necessary to employ the name *Banisteriopsis* Robinson ex Small for this genus. Some combinations have already been published in *Banisteriopsis*, most notably by Cuatrecasas (1958). Many other new combinations will eventually become necessary, but we reject the expedient of a wholesale transfer of names, some of which may not deserve recognition as species. The junior author is now studying the large, natural section of the genus that contains the pink- and white-flowered species and is centered in the Planalto of south-central Brazil. She will publish new combinations for that group at the termination of her study. The purpose of this paper is to publish new combinations for four yellow-flowered species from the Planalto and to describe another from lowland Bahia east of the Planalto.

*Banisteriopsis valvata* Anderson et Gates sp. nov.

Fig. 1.

Liana lignosa 3.5 m in dumeto attingens; ramis junioribus complanatis, brunneo-sericeis, vetustioribus teretibus, albido-sericeis vel glabrescentibus. Folia opposita, sensim in inflorescentiam redacta; lamina 5.0–15.0 cm longa, 4.0–14.5 cm lata (vel in inflorescentia minori), orbiculari vel late ovata, basi truncata subcordatae, apice obtuse brevi-acuminata, margine plana integrae, eglandulosa vel prope basim 1–2 glandes marginales sessiles vel stipitatas gerenti, nervis lateralibus venis parallelis connexis, venis venisque subtus prominentibus, supra obscuris, supra pubescenti mox glabrata, pilis longius in nervis persistentibus, subtus pertinaciter tomentosa, pilis albis, tenuibus, trabecula 0.7–0.9 mm longa, recta vel saepius flexuosa, pede ca. 0.1 mm longo; petiolo 1.0–3.7 cm longo, sericeo vel glabrescenti, supra medium (plerumque 1–3 mm infra apicem) 2 glandes cylindraceas ca. 1 mm longas gerenti; stipulis dissectis, seriem structurarum aliquot triangularium 0.3–1.0 mm altarum inter bases petiolorum facientibus. Inflorescentia atrobrunneo-sericea, paniculata, floribus in umbellis 3- vel 4-floriferis fasciculatis; bracteis bracteolisque 1.5–2.0 mm longis, 0.7–1.1 mm latis, triangularibus vel ovatis, abaxialiter sericeis, adaxialiter glabris, persistentibus; pedunculis 0–1.0 mm

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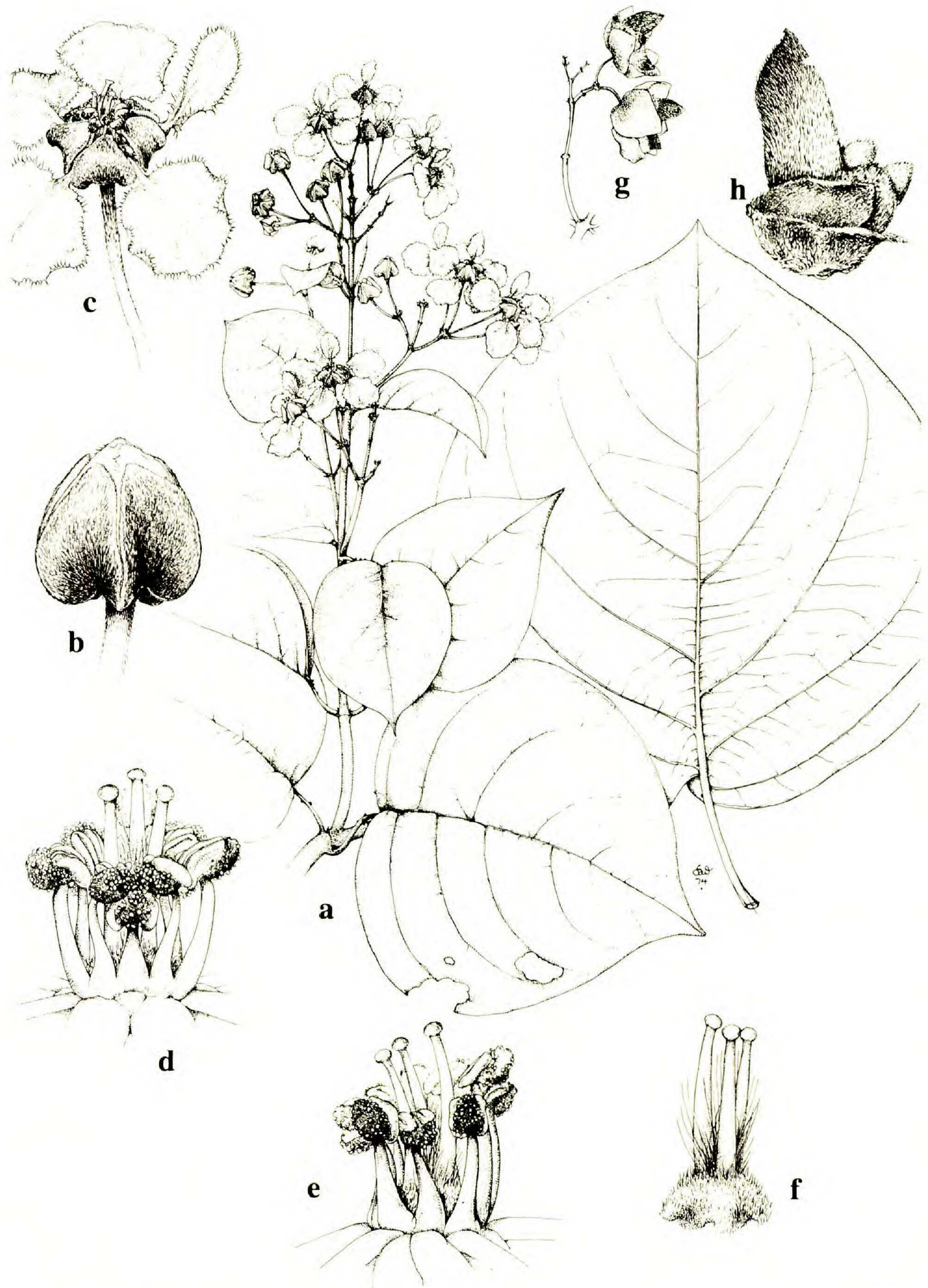


FIG. 1. *Banisteriopsis valvata*: *a*, habit and inflorescence, with larger vegetative leaf,  $\times 0.5$ ; *b*, flower bud,  $\times 2.5$ ; *c*, flower, with innermost (posterior) petal to right,  $\times 1.5$ ; *d*, androecium and gynoecium, posterior view with shortest stamen (that opposite the posterior petal) in foreground,  $\times 5$ ; *e*, androecium and gynoecium, lateral view,  $\times 5$ ; *f*, gynoecium,  $\times 5$ ; *g*, young fruits enclosed by accrescent sepals,  $\times 0.5$ ; *h*, immature fruit, lateral view,  $\times 1.5$ . (Drawn from *Anderson et al.* 36981 by Karin Douthit.)

longis; pedicellis 9–19 mm longis, 0.8–1.0 mm diametro, atrobrunneo-sericeis. Sepala 5, 6.5–8.0 mm longa, 5.5–6.5 mm lata, 2–3 mm proximalibus connata, eglandulosa, late ovata, basi cordata vel subcordata, apice obtusa, exduplicato-valvata, post anthesin adpressa, abaxialiter atrobrunneo-sericea, pilis medifixis, adaxialiter versus marginem minute albo-lanata, pilis brevibus, tortuosis, basifixis, centro basique glabra, in fructu accrescentia, 16 mm longa et 12 mm lata in fructu immaturo. Petala 5, lutea, limbo margine laciniato eglandulosoque, abaxialiter tenuiter sparsimque albo-sericeo. Petala 4 lateralibus inter sepala patentia, ungue 4.0–5.0 mm longo, 0.5–0.6 mm diametro, limbo 10.0–14.0 mm longo latoque, orbiculari, plano, 2 anterioribus quam 2 posterioribus parum majoribus. Petalum posticum erectum, ungue 4.0–4.5 mm longo, 1.1–1.7 mm diametro, apice constricto, limbo 8.2–10.0 mm longo, 6.0–9.0 mm lato, late elliptico, obovato, vel orbiculari, saepe corrugato. Receptaculum glabrum. Stamina 10 filamenta 0.3–0.7 mm proximali connata, glabra, illud sepalo antico oppositum 4.5 mm longum, illa 8 lateralibus 3.0–3.5 mm longa, illud petalo postico oppositum 2.0 mm longum, illa sepalo antico et petalis lateralibus opposita crassa rectaque, illa sepalis lateralibus et petalo postico opposita distaliter tenuia, postice flexa. Antherae subaequales, glabrae, reflexae, deciduae; loculis 1.0–1.5 mm longis, in connectivo distantibus; connectivo loculos 0.4–0.8 mm superanti, globulari, papilloso, antherarum sepalis oppositarum quam petalis oppositarum longiore latioreque. Ovarium 1.5 mm altum, carpellis 3, uniovulatis, liberis, toro pyramidalis adnatis, velutinis. Styli 3, subaequales, 4.0–5.0 mm longi, graciles, stigmatibus capitatis, basi adaxiali barbati (anticus densius), pilis albis vel brunneis, rectis vel flexuosis, basifixis vel sub-basifixis; 2 postici recti, paralleli, versus petalum posticum inclinati, anticus saepe versus sepalum anticum inclinatus, rectus vel parum curvatus. Fructus ex 3 samaris (vel abortu 1–2) constans. Samara immatura sine carpophoro, hispida pilis sub-basifixis et 1.5 mm longis, necnon sericea pilis tenuioribus et plus minusve medifixis; ala centrali 20 mm longa, 9 mm lata, adaxialiter incrassata, basi appendiculam triangularem 5 mm latam altamque gerenti; alis lateralibus in quoque latere 2 vel 3, extimis 8 mm altis, 16 mm longis, et apice et basi liberis, secundis 9 mm altis, 10 mm longis, apice liberis, basi semiconnatis, tertiis parvis, prope basim alae centralis reconditis vel in cristas redactis.

TYPE: BRAZIL. Bahia: shrubby woods on hills of gentle slope, ca. 13 km S of Cocos and 3 km S of the Rio Itaguari, elev. 560 m, 15-III-1972, Anderson, Stieber, & Kirkbride 36981 (UB, holotype; F, IAN, K, MICH, MO, NY, P, RB, SP, U, US, isotypes).

This species is allied with *Banisteriopsis heterostyla*, with which it shares these characteristics: cylindrical glands on the petiole, axillary inflorescences, eglandular sepals, fimbriate petals with long claws, slender, basally bearded styles, glabrous anthers, lateral wings and an anterior appendage on the fruit, and stiff hairs on the fruit. *Banisteriopsis valvata* is notable for its nearly glabrous petals, the valvate aestivation of its sepals (to which the epithet refers), and the great enlargement of the calyx in fruit.

***Banisteriopsis clauseniana*** (Adr. Juss.) Anderson et Gates comb. nov.

*Banisteria clauseniana* Adr. Juss. *Malp. Synopsis in Ann. sc. nat. 2. sér. Bot. 13: 285. 1840.* TYPE: Minas Gerais: "Caxoeira do Campo," *Clausen s.n.* (P).

Niendenzu (1928, p. 411) cited as possible synonyms the older names *Banisteria macrostachia* Vell. (1829) and *B. anisandra* Juss. (1833). Vellozo's description and plate are not adequate for identification of his plant, even to genus, but his description of the habitat as "sylvis maritimis" makes it very unlikely that he was describing *B. clauseniana*. The available descriptions of *B. anisandra* are also inadequate for its identification. Jussieu clearly felt that it and *B. clauseniana* were distinct species, since

he maintained both in his monograph of the family (1843). Examination of the types in Paris should allow resolution of this problem.

Niedenzu applied this name to plants from São Paulo, Minas Gerais, Bahia, and Goiás. The modern collections which we have seen are from Minas Gerais, Goiás, and the present Distrito Federal.

**Banisteriopsis gardneriana** (Adr. Juss.) Anderson et Gates comb. nov.

*Banisteria gardneriana* Adr. Juss. Monogr. *Malp. in Arch. Mus.* 3: 421. 1843. TYPE: Piauí: [Prov. Paranagoa *fide* Niedenzu] *Gardner 2502* (P, holotype, K! NY! isotypes).

Niedenzu (1928, p. 409) cited as a possible synonym the older name *Banisteria aurea* Vell. (1829). Vellozo's description and plate are not adequate for identification of his plant, but his description of the habitat as "fruticetis maritimis," presumably in the region of Rio de Janeiro, makes it unlikely that he was describing *B. gardneriana*.

Niedenzu cites under this name specimens from a wide variety of localities, and it is possible that they represent more than one species. We are applying the name to collections from Minas Gerais, Goiás, the Distrito Federal, and southernmost Piauí.

**Banisteriopsis hypericifolia** (Adr. Juss.) Anderson et Gates comb. nov.

*Banisteria hypericifolia* Adr. Juss. in *St. Hil. Fl. bras. mer.* 3: 42. 1832 [1833]. TYPE: Minas Gerais: Sobrado, *St. Hilaire* (P).

*Banisteria rigida* Adr. Juss. *Malp. synopsis in Ann. sc. nat.* 2. sér. Bot. 13: 284. 1840. TYPE: Minas Gerais: Tijuco [= Diamantina], *Vauthier* (P).

Most collections of *B. hypericifolia* have been made in or near the Serra do Espinhaço in Minas Gerais; we have also applied the name to one collection from western Bahia (*Fryxell 1960*, NY). Niedenzu cites a collection from São Paulo under *B. rigida*, but we have not seen it and cannot evaluate the identification at this time.

In the area of Diamantina, Minas Gerais, one can find shrubby, non-twining plants with the flowers of *B. hypericifolia* but with small narrow leaves and few-flowered inflorescences. Such plants have been named *Banisteria rigida*, and they do seem very different from *B. hypericifolia*, which generally has wand-like stems that twine at the tips, large leaves, and dense inflorescences. However, observations in the field have convinced us that these are the same species. The first sprouts after a fire are "typical" *B. hypericifolia*, and because of their stature and profusion of flowers they are much collected. When protected from fire, the plants eventually assume the shrubby habit and other characters of *B. rigida*. Careful search reveals many plants with intermediate characters, and sometimes one encounters "hypericifolia" shoots from the base of a burned skeleton of "rigida."

**Banisteriopsis virgultosa** (Adr. Juss.) Anderson et Gates comb. nov.

*Banisteria virgultosa* Adr. Juss. *Malp. synopsis in Ann. sc. nat.* 2. sér. Bot. 13: 284. 1840. TYPE: Minas Gerais: Chapada do Paranan [= Parana], alibi ad Rio Hermoso, *Martius* (M).

This species is closely related to *B. hypericifolia*, from which it differs in these characters: habit of a liana, inflorescence axillary to full-sized leaves, branches and pedicels sericeous, sepals densely sericeous, ovary densely hairy, nut of the fruit smooth and densely sericeous. The two collections which we have seen are from western Bahia (*Anderson et al. 36742*, NY) and northern Goiás (*Prance & Silva 58533*, NY).

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